

## ABSTRACT

A method for providing a digital output signal (59) representing an analog input signal (54) in a system (50) including an analog circuit (51) and a control unit (52). Analog circuit (51) preferably features high bandwidth, high gain, and low current consumption. Analog circuit (51) is preferably implemented with low accuracy components. Control unit (52) keeps error outputs (55) of analog circuit (51) at a minimal value so that control unit (52) cancels analog input signal (54) by outputting discrete value signals (58) in a feedback loop as input (58) to analog circuit (51). A DSP (53) of system (50) is previously trained using known analog signals and a model relating inputs (54,58) to error outputs (55) of analog circuit (51) is previously known. During operation, a digital representation (57) of the discrete value signals (58) is fed to DSP (53) that reconstructs analog input signal (54) by knowing from the prior training the effect of control unit (52) and the model of analog circuit (51).